

**GLASS PASSIVATED SUPER FAST RECTIFIER**

**VOLTAGE RANGE 50 to 600 Volts CURRENT 5.0 Amperes**

**FEATURES**

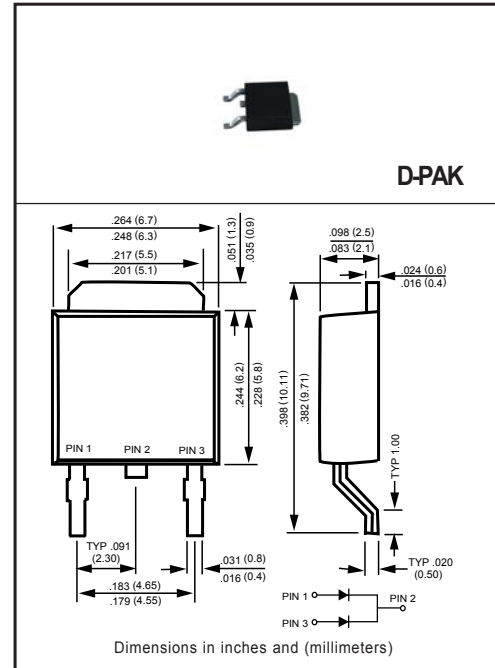
- \* High reliability
- \* Low leakage
- \* Low forward voltage
- \* High current capability
- \* Super fast switching speed
- \* High surge capability
- \* Good for switching mode circuit

**MECHANICAL DATA**

- \* Case: Molded plastic
- \* Epoxy: Device has UL flammability classification 94V-0
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 0.33 grams

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.



**MAXIMUM RATINGS (@ TA=25 °C unless otherwise noted)**

| RATINGS   | SYMBOL                            | SF51CK       | SF52CK | SF53CK | SF54CK | SF55CK | SF56CK | SF57CK | UNITS |
|---|-----------------------------------|--------------|--------|--------|--------|--------|--------|--------|-------|
| Maximum Recurrent Peak Reverse Voltage  | V <sub>RRM</sub>                  | 50           | 100    | 150    | 200    | 300    | 400    | 600    | Volts |
| Maximum RMS Voltage   | V <sub>RMS</sub>                  | 35           | 70     | 105    | 140    | 210    | 280    | 420    | Volts |
| Maximum DC Blocking Voltage   | V <sub>DC</sub>                   | 50           | 100    | 150    | 200    | 300    | 400    | 600    | Volts |
| Maximum Average Forward Rectified Current at T <sub>A</sub> = 55 °C                               | I <sub>O</sub>                    | 5.0          |        |        |        |        |        |        | Amps  |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | I <sub>FSM</sub>                  | 125          |        |        |        |        |        |        | Amps  |
| Typical Thermal Resistance (Note 3)   | R <sub>θJA</sub>                  | 20           |        |        |        |        |        |        | °C/W  |
|   | R <sub>θJL</sub>                  | 5.0          |        |        |        |        |        |        |       |
| Typical Junction Capacitance (Note 2)   | C <sub>J</sub>                    | 50           |        |        |        | 30     |        |        | pF    |
| Operating and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to + 150 |        |        |        |        |        |        | °C    |

**ELECTRICAL CHARACTERISTICS (@ TA=25 °C unless otherwise noted)**

| CHARACTERISTICS   | SYMBOL                    | SF51CK | SF52CK | SF53CK | SF54CK | SF55CK | SF56CK | SF57CK | UNITS |
|---|---------------------------|--------|--------|--------|--------|--------|--------|--------|-------|
| Maximum Instantaneous Forward Voltage at 2.5A DC        | V <sub>F</sub>            | 0.95   |        |        | 1.25   |        | 1.50   |        | Volts |
| Maximum DC Reverse Current at Rated DC Blocking Voltage | @ T <sub>A</sub> = 25 °C  | 5.0    |        |        |        |        |        |        | uAmps |
|   | @ T <sub>A</sub> = 100 °C | 100    |        |        |        |        |        |        |       |
| Maximum Reverse Recovery Time (Note 1)                  | t <sub>rr</sub>           | 35     |        |        |        |        |        | 50     | nSec  |

NOTES : 1. Test Conditions: I<sub>F</sub> = 0.5A, I<sub>R</sub> = -1.0A, I<sub>RR</sub> = -0.25A  
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.  
3. Typical Thermal Resistance : At 9.5mm lead lengths, PCB mounted.  
4. "Fully ROHS compliant", "100% Sn plating (Pb-free)"

## RATING AND CHARACTERISTICS CURVES ( SF51CK THRU SF57CK )

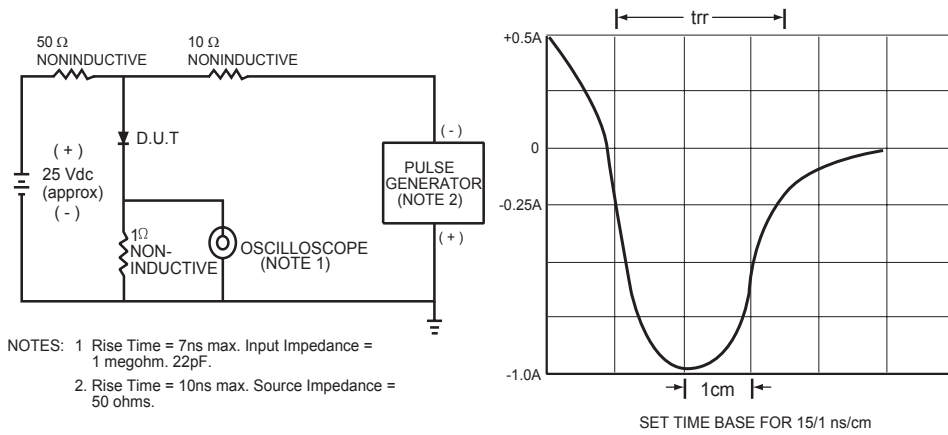


FIG.1 TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

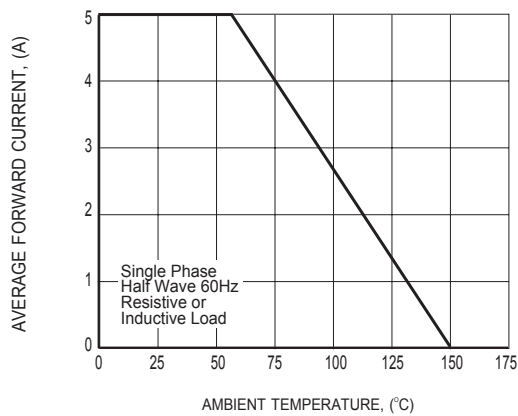


FIG.2 TYPICAL FORWARD CURRENT DERATING CURVE

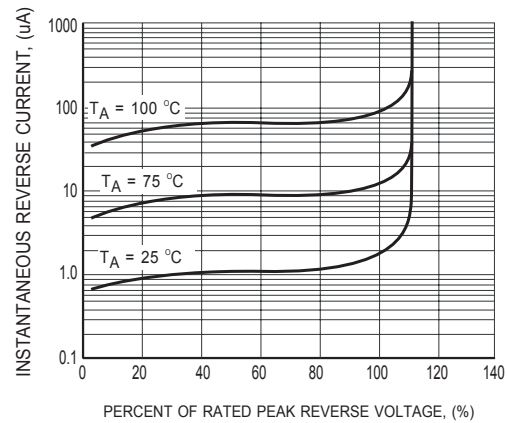


FIG.3 TYPICAL REVERSE CHARACTERISTICS

## RATING AND CHARACTERISTICS CURVES ( SF51CK THRU SF57CK )

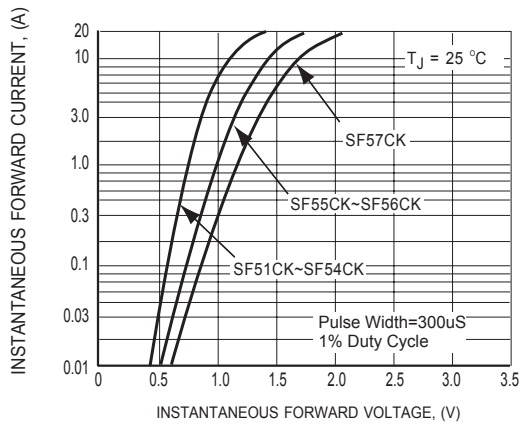


FIG.4 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

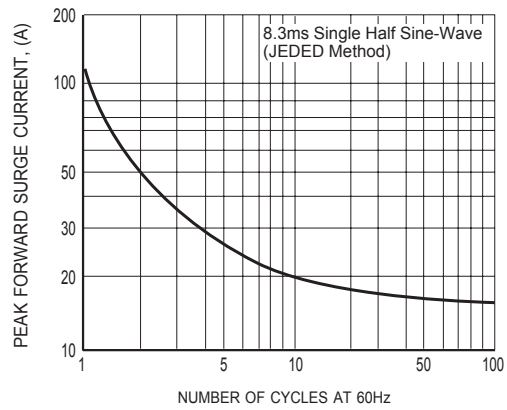


FIG.5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

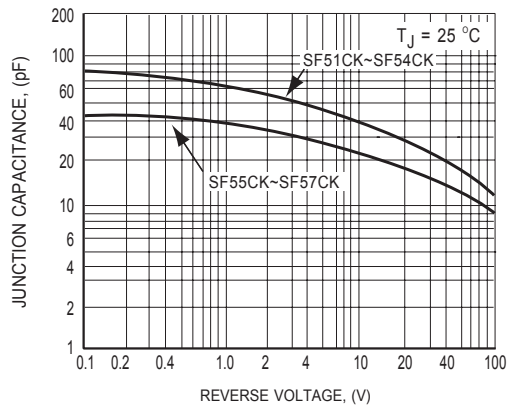


FIG.6 TYPICAL JUNCTION CAPACITANCE

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